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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/734,406	12/12/2003	Alok Kumar	P16884	1174

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EXAMINER
PATEL, JATIN K

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
Office Action Summary	10/734,406	KUMAR ET AL.
	Examiner	Art Unit	
	Jatin K. Patel	2609	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>01 August 2007</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-27</u> is/are pending in the application.

   4a) Of the above claim(s) <u>16-24</u> is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-15 and 25-27</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>12 December 2003</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a)☐ All   b)☐ Some * c)☐ None of:

   1.☐ Certified copies of the priority documents have been received.

   2.☐ Certified copies of the priority documents have been received in Application No. _____.

   3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)   4)☐ Interview Summary (PTO-413)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)   Paper No(s)/Mail Date. _____ .
3)☐ Information Disclosure Statement(s) (PTO/SB/08)   5)☐ Notice of Informal Patent Application
   Paper No(s)/Mail Date _____ .   6)☐ Other: _____ .

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of Group I, claims 1-15, and 25-27 in the reply filed

on 8/1/2007 is acknowledged.

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2.   The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

   1.   Determining the scope and contents of the prior art.
   2.   Ascertaining the differences between the prior art and the claims at issue.
   3.   Resolving the level of ordinary skill in the pertinent art.
   4.   Considering objective evidence present in the application indicating obviousness or nonobviousness.

3.   **Claims 1-2, and 4-15** are rejected under 35 U.S.C. 103(a) as being unpatentable

over Kuo (US Patent Appl. Pub 2005/0128945 A1) in view of Shirai (US Patent

5,734,654 03/31/1998).

Regarding claims 1, 10, and 13, Kuo teaches to receive processing element a request to transmit a packet associated with a packet identifier (page 1, paragraph 001 receiving request and arranging to be transmitted each packet); Kuo also teaches to determine a number of transmit buffer associated with packet buffer (page 1, paragraph 0012, fig 1 determining each packet should be transmitted based on quality of service parameter associated with packet); Kuo also teaches about local memory portion (fig 4, local queue item 422).

Kuo does not teach to arranging for the packet to be transmitted through a port without storing the packet identifier in a local transmit queue if the number of transmit buffers does not exceed a pre-determined threshold.

Shirai teaches to arranging for the packet to be transmitted through a port without storing the packet identifier in a local transmit queue if the number of transmit buffers does not exceed a pre-determined threshold (fig 18, if congestion is detected then packet stored in common buffer. If congestion is not detected then packet is transmitted without storing. Column 14, line 10-25, congestion is detected based on resources to processor such as available port, transmission buffer etc, buffer exceeds a predetermined references value, column 2 line 27-32); Shirai also teaches to arrange packet identifier to be stored in local transmit queue for that port if the number of transmit buffer exceeds the pre-determined threshold (fig 18 shows that if congestion is detected then packet is stored in common buffer means local memory, congestion is detected based on available resources such as port, transmitting buffer etc, buffer exceeds a predetermined references value, column 2 line 27-32).

It would have been obvious to one of ordinary skill in the art at the time of invention was made to add technique from Shirai to Kuo to processing packets from common buffer and sent out when congestion has been resolved, thereby preventing packets to being discarded (Shirai, column 3, line 55-57).

Regarding claims 2, 11, and 14 combination of Kuo and Shirai teaches that covers substantially all limitation of parent claim as above in claim 1. Kuo does not teach to store packet ID in local transmit queue for that port if the number of transmit buffer exceeds the pre-determined threshold. Shirai also teaches to arrange packet identifier to be stored in local transmit queue for that port if the number of transmit buffer exceeds the pre-determined threshold (fig 18 shows that if congestion is detected then packet is stored in common buffer means local memory, congestion is detected based on available resources such as port, transmitting buffer etc, buffer exceeds a predetermined references value, column 2 line 27-32).

It would have been obvious to one of ordinary skill in the art at the time of invention was made to add technique from Shirai to Kuo to store packet ID in local transmit queue, thereby preventing packets to being discarded (Shirai, column 3, line 55-57).

Regarding claims 4, 6, 12, and 15 combination of Kuo and Shirai teaches that covers substantially all limitation of parent claim as above in claim 1. Kuo also teaches to check availability of port to transmit packets (page 2, paragraph 19). Kuo does not teach to arranging for the packet to be transmitted through a port without storing the packet

identifier in a local transmit queue if the number of transmit buffers does not exceed a

pre-determined threshold. Shirai teaches to arranging for the packet to be transmitted

through a port without storing the packet identifier in a local transmit queue if the

number of transmit buffers does not exceed a pre-determined threshold (fig 18 shows

that if congestion is detected then packet is stored in common buffer means local

memory, congestion is detected based on available resources such as port, transmitting

buffer etc, buffer exceeds a predetermined references value, local queue is empty or

not, column 2 line 27-32).

It would have been obvious to one of ordinary skill in the art at the time of invention was

made to add technique from Shirai to Kuo to transmit packets without storing in local

queue to speed up packets processing.

Regarding claim 5, Kuo also teaches evaluation is based on a flow-control condition of

that port (page 2, paragraph 0019).

Regarding claim 7, Kuo also teaches request to transmit the packet is received from a

queue manager (fig 1, schedule processing element is substantially same as queue

manager).

Regarding claim 8, Kuo also teaches to use thread in multi-threaded, reduced

instruction set computer micro engine (page 1, paragraph 12, line 7-12).

Regarding claim 9, Kuo also teaches that microengine is associated with at least one

of I) network device II) network processor III) ATM network device (page 1, paragraph

0010).

4.   **Claims 3** is rejected under 35 U.S.C. 103(a) as being unpatentable over Kuo (US

Patent Appl. Pub 2005/0128945 A1) in view of Shirai (US Patent 5,734,654 03/31/1998)

and further in view of Karlsoon (US Patent App. Pub. 2002/0146014 10/10/2002).

Regarding claim 3, combination of Kuo and Shirai teaches that covers substantially all

limitation of parent claim as above in claim 1. Kuo and Shirai does not teach to store

packet in external memory when local transmit queue for that port is full. Karlsoon

teaches technique to store packet in external memory when local transmit queue for

that port is full (page 9, paragraph 0116).

It would have been obvious to one of ordinary skill in the art at the time of invention was

made to add technique from Karlsoon to the process of Kuo to prevent packets from

being discarded.

5.   **Claims 25-27,** are rejected under 35 U.S.C. 103(a) as being unpatentable over

Shirai (US Patent 5,734,654 03/31/1998) in view of Mullendore (US Patent App. Pub

2003/0026205).

Regarding claim 25, Shirai teaches to arranging for the packet to be transmitted

through a port without storing the packet identifier in a local transmit queue if the

number of transmit buffers does not exceed a pre-determined threshold (fig 18, if

congestion is detected then packet stored in common buffer. If congestion is not

detected then packet is transmitted without storing. Column 14, line 10-25, congestion is

detected based on resources to processor such as available port, transmission buffer

etc, buffer exceeds a predetermined references value, column 2 line 27-32).

Shirai does not teach about system comprising: a backplane; a first line card connected

to the backplane; a second line card connected to the backplane, the second line card

including processing element having: input path to receive request to transmit a packet

associated wit packet ID; a local memory portion.

Mullendore teaches a system that comprising: a backplane (fig 1); a first line card

connected to the backplane (fig 1); a second line card connected to the backplane, the

second line card including processing element having: input path to receive request to

transmit a packet associated wit packet ID (page 5, paragraph 0058, packet arrives at

input port, an entry packet is stored into packet descriptor memory to route that packet);

a local memory portion (fig 1, packet descriptor memory 408).

It would have been obvious to one of ordinary skill in the art at the time of invention was

made to add system component from Mullendore to Shirai speed up packets

processing.

Regarding claim 26, Shirai also teaches to arrange packet identifier to be stored in

local memory portion for that port if the number of transmit buffer exceeds the pre-

determined threshold (fig 18 shows that if congestion is detected then packet is stored

in common buffer means local memory, congestion is detected based on available

resources such as port availability, transmitting buffer etc, buffer exceeds a

predetermined references value, column 2 line 27-32).

Regarding claim 27, Shirai further teaches to transmit packet without storing in local memory portion if I)number of transmit buffers does not exceed the predetermined threshold and II) port is available to transmit (fig 18 shows that if congestion is detected then packet is stored in common buffer means local memory, congestion is detected based on available resources such as port availability, transmitting buffer etc, buffer exceeds a predetermined references value, column 2 line 27-32).

Conclusion

The prior art made of record and not relied upon is considered pertinent 10 applicant's disclosure.

*Mullendore (US 2003/0026205) disclosed regarding Packet Input Threshold for resource distribution in a Network Switch.

*Bao (US 6,788,687) disclosed regarding Scheduling packet data transmission in a wireless communication system.

*Drummond-Murray (US 6,594,270) disclosed regarding Aging of data packets using queue pointers.

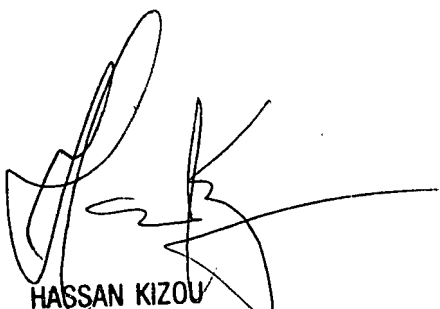*Hao (US 6,851,008) disclosed regarding Adaptive flow control method and apparatus.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jatin K. Patel whose telephone number is 571-270-1839. The examiner can normally be reached on 8-5 Mon-Fri Est.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on 571-272-3088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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